

REMARKS

Claims 1, 3-9, 12, 15-19, and 22-24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Salisbury (US 5,303,074) in view of Henley (US 5,459,410), and claims 21 and 26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Salisbury in view of Henley and Baum et al. (US 5,407,710). Applicant respectfully traverses these rejections for at least the following reasons.

Independent claim 1 recites a repair structure for a liquid crystal display including, in part, “a repair pattern electrically isolated from the second segment and electrically connecting the first segment with the third segment of the data line, wherein the repair pattern bypasses to pixel electrodes adjacent to the data line and has a portion overlapping the pixel electrodes.” Independent claim 9, as amended, recites a repair structure for a liquid crystal display including, in part, “a scan line crossing the data line and having first, second, and third segments, wherein the second segment is electrically isolated from the first and third segments by an insulating material and is located at a portion where the scan line and the data line overlap.” Similarly, independent claim 17 recites a method of repairing a liquid crystal display including, in part, steps of “electrically isolating a portion of the data lines that are short circuited with the scan lines where the data lines and scan lines are overlapped, thereby forming first, second, and third segments of the data lines, wherein the isolated portion is the second segment,” and “forming an insulating material to fill portions between the first and second segments of the data lines and between the second and third segments of the data lines.” Furthermore, independent claim 22 recites a method of repairing a liquid crystal display including, in part, steps of “electrically isolating a portion of the scan lines that are short circuited with the data lines where the data lines and scan lines are overlapped, thereby

forming first, second, and third segments of the scan lines, wherein the isolated portion is the second segment,” and “forming an insulating material to fill portions between the first and second segments of the scan lines and between the second and third segments of the scan lines.”

The Office Action admits that “Salisbury does not expressly disclose that the repair pattern bypasses to pixel electrodes adjacent to the data line and has a portion overlapping the pixel electrodes,” and “forming an insulating material to fill the portions between the second segment and the first segment of the data lines (or the scan lines) and between the second segment and the third segment of the data lines (or the scan lines).” Thus, the Office Action relies upon Henley for allegedly teaching a conductive bridge such that “the repair pattern is a conductive bridge across the pixel region as shown in Fig. 12c” since “the gate line (scan line) and the data line form the pixel region, as shown in Figs. 6 and 14.” In addition, the Office Action asserts that “Henley indicates (col.2, lines 15-18) such repair structure improving the production yields, especially, for assembling high density active matrix LCD panels.” Furthermore, the Office Action attempts to use the definition of the term “bypass” to somehow support the allegation that when forming the conductive bridge, “the repair pattern of the conductive bridge, inherently, bypassing to pixel electrodes adjacent to the data line,” and “the repair pattern of the conductive bridge, inherently, overlapping the pixel electrodes.” Moreover, the Office Action somehow concludes that “the repair pattern is a current shunt,” and that it would have been “obvious to those skilled in the art at the time the invention was made to arrange a repair pattern as claimed in claims 1 and 9 for improving the production yields of the high density active matrix LCD display.” Applicant strongly disagrees.

Applicant respectfully asserts that the Office Action's alleged motivation to modify Salisbury (i.e., arranging a repair pattern for improving the production yields of the high density active matrix LCD display) is inapposite to the explicit teachings of Henley. As clearly shown in FIGs. 12a-12c and discussed at col. 11, line 65 to col. 12, line 6 of Henley, the conductive bridge 88 is formed to contact areas 84 and 86 without shorting to data line 13. In addition, although the pixel regions of Salisbury and Henley may be defined by the gate and data lines, Applicant respectfully asserts that both Salisbury and Henley are completely silent with respect to a repair pattern overlapping adjacent pixel *electrodes*. Furthermore, the Office Action's allegation that "the desirable pixel region is as larger [sic] as possible in order to enlarge the display area" is directly contrary to the Office Action's further allegation that "the repair pattern of the conductive bridge, inherently, overlapping the pixel electrodes." For example, if the pixel region of Henley is supposed to be "as larger [sic] as possible to enlarge the display area," then why would Henley form the conductive bridge over the pixel electrode? One of ordinary skill in the art would know that placing the conductive bridge over the pixel electrode would, in fact, reduce the display area, and not enlarge the display area. Thus, Applicant respectfully asserts that the conductive bridge of Henley would most certainly **not** overlap the pixel electrodes since doing so would reduce the display area of the device.

Furthermore, Applicant respectfully asserts that FIGs. 6 and 14 of Henley are merely schematic circuit diagrams that neither teach nor suggest "the repair pattern is a conductive bridge across the pixel region," as alleged by the Final Office Action. In other words, Applicant respectfully asserts that neither Salisbury nor Henley, whether taken singly or combined, teach or suggest "a repair pattern electrically isolated from the second segment and

electrically connecting the first segment with the third segment of the data line, wherein the repair pattern bypasses to pixel electrodes adjacent to the data line and has a portion overlapping the pixel electrodes,” as recited by independent claim 1, and hence dependent claims 3-8.

With regard to use of the definition of the term “bypass,” Applicant respectfully asserts that the Office Action’s allegation that “[t]herefore, the repair pattern is a current shunt” is inapposite to whether or not Salisbury and/or Henley discloses that the claimed repair pattern “bypasses to pixel electrodes adjacent to the data line and has a portion overlapping the pixel electrodes,” as recited by independent claim 1. The Office Action’s contention that the term “bypass” is inherently to be broadly interpreted to mean that the conductive bridge of Henley automatically overlaps the pixel electrodes is simply not supported by either Henley or by any broad and reasonable interpretation of Henley. In other words, Applicant asserts that Henley neither shows, discloses, or implies that the conductive bridge “overlaps” pixel electrodes, whether or not the display is enlarged. Thus, Applicant respectfully asserts that the Office Action has failed to establish a *prima facie* case of obviousness with respect to at least independent claim 1, and hence dependent claims 3-8.

The Office Action further admits (page 4, line 21 to page 5, line 2) that Salisbury does not expressly disclose “forming an insulating material to fill the portions between the second segment and the first segment of the data lines (or the scan lines) and between the second segment and the third segment of the data lines (or the scan lines).” In direct contradiction, the Office Action continues to allege that Salisbury explicitly teaches “(col. 7, line 65 – col. 8, line 3) that electrically insulating the conductive lines (such as the repair lines and the transmission lines, all of them are conductive lines) are typically by forming an intermediate

layer of dielectric material such as silicon oxide or silicon nitride between the conductive lines.” Then, the Office Action alleges “that is a conventional technique in order to insulate the two conductive segments, because the insulating material has a reliable insulating property.” Thus, the Office Action concludes “it would have been obvious to those skilled in the art at the time the invention was made to fill an insulating material into the portions between the segments of the data lines or scan lines as claimed in claims 17 and 20 in order to obtain a reliable insulation between the conductive segments.” Applicant strongly disagrees.

First, the Office Action is contradictory with regard to exactly what Salisbury does and does not teach. However, Applicant respectfully submits that it is inapposite whether or not Salisbury teaches or suggests use of electrically insulating material between conductive segments since Salisbury explicitly discloses (col. 3, lines 27-30) that “[i]t is another object of the present invention to provide a thin film electronic device structure that readily provides for repair of the device **after** it has been fabricated” (emphasis added). Accordingly, the device disclosed by Salisbury is designed to be repaired without any additional post-fabrication processing, i.e., deposition of conductive/insulative materials, once the device has been repaired. Thus, Applicant respectfully asserts that the Office Action’s alleged reasoning is directly contrary to the disclosure of Salisbury, and as such, one of ordinary skill in the art would not re-process the device of Salisbury to deposit insulating material within the severence points 160A and 160B in FIG. 2B of Salisbury.

Second, Applicant respectfully asserts that Henley explicitly teaches (col. 9, lines 5-7) that “[e]lectrical isolation of the short is accomplished by severing one of the two shorted transmission lines adjacent to the crossover point.” Thus, the repair structure disclosed by Henley specifically does not require any additional post-processing to include insulating

material within the severance points 160A and 160B. Therefore, Applicant respectfully asserts that the Office Action has failed to establish a *prima facie* case of obviousness with respect to at least independent claims 9, 17, and 22, and hence dependent claims 12, 15, 16, 18, 19, 21, 23, 24, and 26.

Applicant further asserts that the Office Action does not rely on Baum et al. to remedy the deficiencies of Salisbury and/or Henley, as detailed above. Moreover, Applicant respectfully asserts that Baum et al. cannot remedy the deficiencies of Salisbury and/or Henley, as detailed above.

Accordingly, Applicant respectfully notes that MPEP 2143.01 instructs that “[o]bviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention, where there is some teaching, suggestion or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art.” Moreover, MPEP 2143 instructs that “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless that prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).”

Thus, Applicant respectfully asserts that the Office Action has not provided any motivation for one of ordinary skill in the art to modify the teachings of Salisbury with the teachings of Henley and/or Baum et al. to achieve the invention of independent claim 1, 9, 17, and 22, and hence dependent claims 3-8, 12, 15, 16, 18, 19, 21, 23, 24, and 26.

Since the Office Action fails to meet the requirements for establishing a *prima facie* case of obviousness as to independent claims 1, 9, 17, and 22, claims 1, 9, 17, and 22 are not obvious. Further, since claims 3-8, 12, 15, 16, 18, 19, 21, 23, 24, and 26 depend from claims

1, 9, 17, and 22, and incorporate all the features of claims 1, 9, 17, and 22, claims 3-8, 12, 15, 16, 18, 19, 21, 23, 24, and 26 are not obvious at least for at least the above reasons for which independent claims 1, 9, 17, and 22 are not obvious. Thus, Applicant respectfully requests that all rejections under 35 U.S.C. § 103(a) be withdrawn.

CONCLUSION

In view of the foregoing, Applicant respectfully requests the Examiner's reconsideration and reexamination of the application and the timely allowance of the pending claims. Should there remain any questions or comments regarding this response or the application in general, the Examiner is urged to contact the undersigned at the number listed below.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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